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ABSTRACT

The paper suggests appropriate activities for teaching learning disabled fourth graders in a regular class the concepts of geographical latitude and longitude. Application of the learning principles identified in a review of the literature suggests the need to include visual, auditory, kinesthetic, and tactile activities of benefit to the entire class. The proposed learning unit provides detailed teaching instructions and is related to a commonly used Social Studies textbook. Materials used include a globe, relief maps, and cut-outs of the continents. (DB)

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Suggestions for Teaching 4th Grade LD Students the Concept of Longitude and Latitude in Geography

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Running Head: TEACHING L.D. STUDENTS LATITUDE

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The generally accepted definition of learning disabled children emphasizes that these students do not perform up to the potential that is appropriate for their age and grade. The learning disabled have problems in math, spelling, language, and reading which prevent them from working at a level consistent with their intellectual capacity (Candler, 1983).

Reading in the content areas is a particularly difficult task to teach and to learn for all students because of the abstract vocabulary and concepts that are found in the subject matter. The LD student is especially hampered because of the characteristics of inadequate skills in decoding, vocabulary and reading comprehension, and difficulty in left-right orientation (Britton, 1983). Social studies instruction is an integral part of the fourth grade curriculum for all students regardless of individual abilities and learning channels. Since many students who have learning problems do not qualify for special class placement, it is the task of the teacher in a regular classroom to group students with special needs and to adapt the curriculum to satisfy those needs (Candler, 1983). Identifying the problems typically experienced by LD students is the first step in the adaptation of the curriculum.

Learning disabled students usually exhibit an inability to pay attention to relevant details and lack selective attention skills (Brown & Alford, 1984). These students make decisions rapidly without pausing to consider alternatives and use first responses that come to mind. Poor performance is the result of the child's use of inadequately organized techniques for solving problems.

Brown & Alford suggested attentional skills training activities to ameliorate these problems. For example, the teacher could include such tasks as match-to-sample activities. Given a set of alternatives, the children must state which example deviates from the sample and explain why. In the memory task activity, sample pictures are exposed for a limited time period (e.g. ten seconds) and the children are asked to recall a particular detail.

Kidder (1984) states that the ability to ask for clarification is a thinking skill which many LD children do not develop because of their inability to use mature questions, a lack of awareness that they don't understand, and the fear that asking questions means that one is "stupid". Students need reassurance that asking questions is not only good, even essential to learning, but also need practice in how to ask for clarification. To increase facility in asking questions, Kidder outlined the inclusion of activities such as: having the children locate information in textbooks to form questions that can be answered by teacher-given statements; playing "Twenty Questions" where a child chooses but does not identify an object in the room and classmates ask questions to determine its

identity; and having a student speaker describe an object and the listeners ask questions for clarification to identify the object out of a group. These activities can demonstrate that questioning is a necessary task for clarification in a non-threatening atmosphere.

Learning disabled students may also have difficulty in detecting and utilizing verbal information. This difficulty is the underlying cause of memory problems. They process orally-presented material more slowly than normal which in turn makes remembering and recall very difficult. In addition, the teacher must keep in mind that they analyze fewer semantic features of verbal information and at a slower rate (Cermak, 1983).

Being aware of the problems LD students have in classroom learning, teaching in the content areas requires the teacher to consider strategies that better enable the LD students to process the more complex, abstract material found in social studies texts. A map skills program for elementary students overall should be related to concrete experiences and proceed to abstract ones. Exercises to develop map skills should be directed to the sensory-motor experiences of the child (Frazee, 1984).

Price (1982) suggested the use of a variety of approaches in teaching social studies curriculum to mainstreamed learning disabled students. These approaches included: concrete materials and examples before introduction of the abstract whenever possible; peer tutoring for reading and explaining difficult passages;

enlarged visual aids that are simple and clear; tape recordings of questions, quizzes, and factual information.

Cinquemani (1982) applied a multi-sensory approach to teaching social studies to LD children. These students had problems in perception, spatial relationships, and long and short term memory. Visual, kinesthetic, and tactile adaptations were applied to teaching the location of and leading products of the 50 states by including cut-paste activities, constructing a class puzzle of the U.S., making a "collage" type poster of the leading products, and painting the different regions in bright colors for illustration.

In Carny's (1984) study, preteaching of vocabulary words had a significant effect on the acquisition and retention of social studies content. Textbooks contain vocabulary that represent concepts essential to understanding the content; but these concepts which can not be learned through concrete references must be learned through definition and explanation.

McKinney (1983) examined three methods of teaching social studies concepts to fourth graders and found the Merrill & Tennyson model the most effective. In this model, students were given practice in identifying examples and non-examples, definitions that aided concept acquisition, and an interrogatory practice session. (Students explained why examples were or were not correct.)

For the visually impaired learners, Miller (1982) found that teaching map skills by tactual exploration with relief maps--raised surface materials--enabled these pupils to relate abstract terms to real world locations.

"Since students who are labeled learning disabled and placed in special education programs seem very similar to other students

who are experiencing academic problems, similar teaching strategies could be employed for both groups." (Candler, 1983.)

Applying these principles to developing an effective social studies curriculum that includes successful map skills acquisition for learning disabled children means the inclusion of visual, auditory, kinesthetic, and tactile activities that could, in fact, benefit the entire class. Teaching social studies effectively includes instruction in using geography tools such as the lines of longitude and latitude. The purpose of this paper is to suggest such activities for a social studies unit found in a commonly used text, published by Silver Burdett, for fourth grade classes.

Unit 1, entitled "Learning About Communities", includes the following sub-chapters: The Earth, Maps, Scale, Communities and States, Our Country, Continents and Hemispheres, Latitude and Longitude, Time Lines, Graphs. The topic of longitude and latitude was selected because of the particular difficulties the concepts present to children who have problems with abstract vocabulary and directionality (Britton, 1983).

TOPIC: Latitude and Longitude

OBJECTIVE: To understand that lines are drawn on maps and globes as a tool to locate places; that latitude lines are drawn west to east and longitude lines are drawn north to south; that these lines measure distance from the Equator or Prime Meridian by degrees; these parallels are used to locate places in the world.

PREREQUISITES: A) Globe as a model of the Earth.

B) Continents and oceans are depicted on a globe.

C) Knowledge of the cardinal directions N,S,E,W and the compass rose.

D) Equator and Prime Meridian, hemispheres.

CONCEPTUAL VOCABULARY: Latitude, longitude, degree

I. Review (A) Globe:

To relate the globe to a familiar, concrete object use a large mono-colored ball approximately the same size as the globe. Compare their similarities and differences. Review the characteristics of a globe that make it a model of the Earth. Introduce the word sphere, write it on the chalkboard, as a synonym for a ball's shape. Review how the globe is similar to Earth in space; show a large picture of the Earth in space. Allow children to locate and point out bodies of land, water, and the North and South Poles on the globe. Using a paper or model airplane, let children move the airplane across the globe from continent to continent explaining the North, South, East or West directions; distinguish up/down from North and South (Pritchard, 1984).

Review (B) Continents and Oceans

Hold up cut-outs of the seven continents for class identification; have a child write the name of each continent on the chalkboard. Using relief maps for tactual examination, allow a volunteer to touch and identify each landform and point it out on the globe. Let students identify orally the oceans that touch each continent. Hold up flash cards of continents two, three, then four at a time for one minute intervals. Have the children name the continents seen.

Review (C) Directions and the Compass Rose

Using a diagram of a compass rose (see Fig. 1), let children identify S, E, W on examples.

Mark N in the room. Select a child who will face North and

point East, etc.; face South and point North, etc.

With directions given orally, children must locate objects or persons in the room. Then, the child mentally selects an object and gives cardinal directions to point out its location.

Using a diagram of a compass rose and non-examples (see Fig. 2), have children explain why they are wrong.

Allow children to give oral directions as "Captain of the Ship" to travel across oceans to different continents/islands by moving paper boat across the globe.

Review (D) Equator and Prime Meridian

Using flash cards of geographical terms learned so far, have children pick out the one that doesn't belong. Examples:

North Pole	South Pole	Sun	Equator
Africa	Moon	Asia	Europe
Prime Meridian	hemisphere	Equator	oceans

(See diagrams 3,4) Show diagram of Equator on the globe. Elicit from children the function of the Equator on a globe. Identify hemispheres; relate to globe; allow a child to color Northern/Southern hemispheres on diagram. Continue with Prime Meridian and Eastern/Western hemispheres.

Practice identifying the hemispheres by placing the paper boat on diagram. Elicit hemisphere's identification from students.

II. Latitude and Longitude

Preteaching vocabulary has a significant effect on understanding content (Carny, 1984). Write the vocabulary word "degree" on the chalkboard. Say: I use a scale to measure weight.
I use a yardstick to measure length.
I use a thermometer to measure degrees.
Mapmakers use degrees to measure ____.

Refer to text to find the correct word, read aloud.

Write the vocabulary words Latitude and Longitude on chalkboard and read aloud. Say: Mapmakers use lines on globes called latitude and longitude. Ques.: What are latitude lines? Refer to text for answer. Say: Every globe has a latitude line marked zero degrees. Ques.: What is that line called? Refer to text. Let children read aloud the sentence in the text that gives the answer and explain (McKinney, 1983). Have a child demonstrate how latitude lines are shown on maps and draw on the chalkboard (Britton, 1983). Latitude lines are drawn across the globe. Point out the "a" in both words to help them remember. Say: They measure distance from the Equator. Let children form a question for the statement (Kidder, 1984).

Ques.: What do we call the longitude line marked zero degrees? Refer to text, mark chalkboard diagram. Point out that longitude lines go up and down; call attention to the "o" in both words to help them remember.

Write the following statements to review vocabulary:

___ lines measure distance from the Equator.
___ lines measure distance from the Prime Meridian.
We measure distance from the Equator by ____.
We measure distance from the Prime Meridian by ___.

To develop the concept of degree as a measurement of distance and the North/South designation for above or below the equator: Refer to diagram 5 for latitude lines, place a paper cut-out ship on each latitude line and ask for a description of its location; e.g. "It is on the 1st line below the Equator." Refer to text to

find the way latitude lines are described. Say: Each latitude line should be marked two ways. How do we mark each line? (By number and letter.) What does the number stand for? (Distance measured by degree.) What do the letters stand for? (North or South of the Equator.) Give examples and have children point out the correct latitude on the diagram. Example: 30° S, 40° N, 0° , etc.

Since most LD students will have difficulty analyzing, remembering, and utilizing more than one term at a time, the concept of longitude should be taught in a similar manner but in a separate lesson (Cermak, 1983) using diagrams as depicted in Fig. 5.

Summary:

Traditional teaching methods that rely on reading aloud and question/answer sessions are not sufficient activities to develop cognitive skills for children who have difficulty in decoding and comprehending written text. The inclusion of visual, auditory, kinesthetic, and tactile exercises in the development of a lesson stimulate interest, provide perceptual clues, and hold the attention of students particularly when dealing with complex, abstract information. Learning should be perceived by the students as meaningful as well as fun, and within their grasp. The learner should always be an active participant in the process.

Conclusion:

The average classroom is a heterogeneous collection of students with different interests, varying levels of proficiency in basic skills, and individual preferences for learning styles. The teacher's task in making a social studies curriculum both challenging and

cognitively coherent for each student regardless of preference or academic level is a mammoth one. Effective teaching means actively involving every student. Whether in a regular classroom with mainstreamed LD pupils or in a special education setting, audio, visual, kinesthetic, and tactile approaches should be included in curriculum planning.

Britton, R.A. (1983). Teaching map reading to learning disabled children. Academic Therapy, 19, 179-184.

Brown, R.T. & Alford, N. (1984). Ameliorating attentional deficits and concomitant academic deficiencies in LD children through cognitive training. Journal of Learning Disabilities, 17(1), 20-25.

Candler, A.C. (1983). The differences among children with learning problems. Education, 104, 219-23.

Carny, J.J. (1984). Preteaching vocabulary and the comprehension of social studies materials by elementary school children. Social Education, 48, 195-6.

Cermak, L.S. (1983). Information processing deficits in children with LD. Journal of Learning Disabilities, 16, 599-605.

Cinquemani, D. (1982). Teaching the map. Academic Therapy, 17, 563-4.

Frazee, B.M. (1984). Foundations for an elementary map skills program. Social Studies, 75, 79-82.

Kidder, J. (1984). I don't understand: Can you tell me again? Academic Therapy, 19, 357-60.

McKinney, J. (1983). The effectiveness of three methods of teaching social studies concepts to fourth grade students. American Educational Research Journal, 20, 663-70.

Miller, J.W. (1982). Geography for the blind: Developing audio-tutorial map material. Social Studies, 73, 263-7.

Price, R.D. (1982). Mainstream in the social studies. Social Studies, 73, 151-4.

Pritchard, S.F. (1984). Robots, bulldozers, and other map activities for the primary grades. Journal of Geography, 83, 83-4.

Loftin, R.H. (1984). The world and its people: Communities and resources. New Jersey: Silver Burdett Company.

Diagrams:

Fig. 1 - Compass Rose

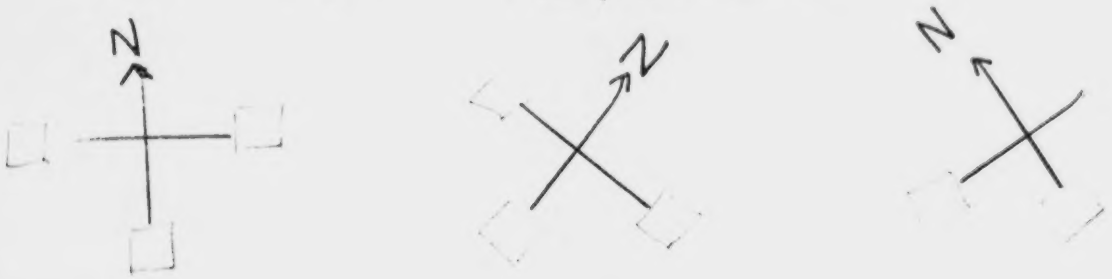
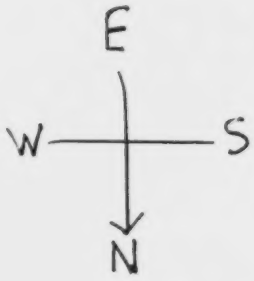


Fig. 2



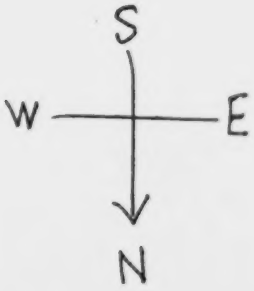


Fig. 3

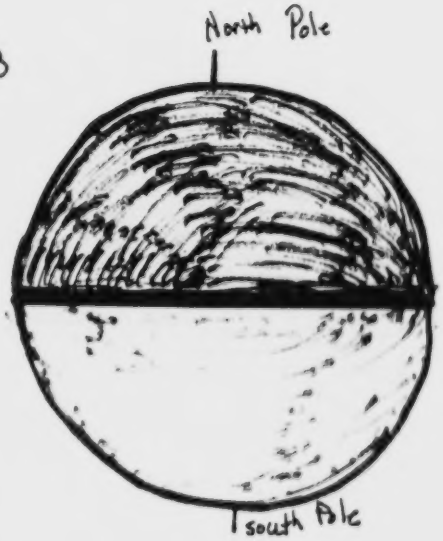


Fig. 4

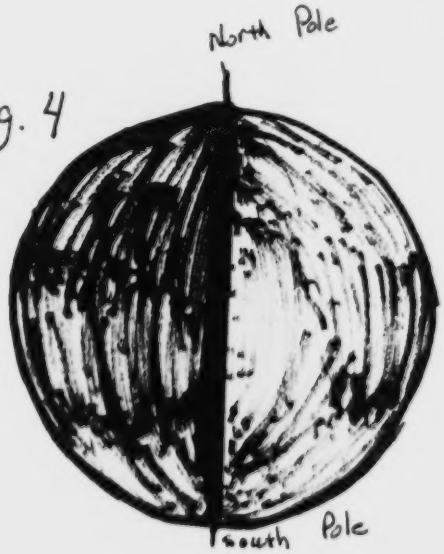


Fig. 5